



MARCH 2011

Issue Brief

Sharing Resources: Opportunities for Smaller Primary Care Practices to Increase Their Capacity for Patient Care

Findings from the 2009 Commonwealth Fund International Health Policy Survey of Primary Care Physicians

ASHLEY-KAY FRYER, MICHELLE M. DOTY,
AND ANNE-MARIE J. AUDET

The mission of The Commonwealth Fund is to promote a high performance health care system. The Fund carries out this mandate by supporting independent research on health care issues and making grants to improve health care practice and policy. Support for this research was provided by The Commonwealth Fund. The views presented here are those of the authors and not necessarily those of The Commonwealth Fund or its directors, officers, or staff.

For more information about this study, please contact:

Ashley-Kay Fryer
Research Associate
The Commonwealth Fund
akf@cmwf.org

To learn more about new publications when they become available, visit the Fund's Web site and register to receive email alerts.

Commonwealth Fund pub. 1489
Vol. 4

ABSTRACT: Most Americans get their health care in small physician practices. Yet, small practice settings are often unable to provide the same range of services or participate in quality improvement initiatives as large practices because they lack the staff, information technology, and office systems. One promising strategy is to share clinical support services and information systems with other practices. New findings from the 2009 Commonwealth Fund International Health Policy Survey of Primary Care Physicians suggest smaller practices that share resources are more likely than those without shared resources to have advanced electronic medical records and health information technology, routinely track and manage patient information, have after-hours care arrangements, and engage in quality monitoring and benchmarking. This issue brief highlights strategies that can increase resources among small- and medium-sized practices and efforts supported by states, the private sector, and the Affordable Care Act that encourage the expansion of shared-resource models.

★ ★ ★ ★ ★

OVERVIEW

With the enactment of the Affordable Care Act, attention has turned toward strengthening primary care to improve health outcomes and restrain the growth of health care spending. Currently, most U.S. physicians work in solo or small-to-medium group practices and lack the resources necessary to invest in information technology or in hiring staff members who can assist in care coordination and care management.¹ Small practices also typically lack the ability to obtain data to compare their performance to that of other practices or benchmarks. One promising strategy to enhance the capacity of solo and small practices to care

for patients is to share resources with other physicians and the community.² Current shared-resources models include regional extension centers (RECs), which provide expert guidance and support services to small practices on activities like implementing health information technology and exchange, selecting vendors, and ensuring functional interoperability. Shared resources could also take the form of sharing staff and clinical services through a regional or community-based pool.

Drawing from the 2009 Commonwealth Fund International Health Policy Survey of Primary Care Physicians, this study finds that solo and small practice settings in the United States tend to lag behind larger practices (10 or more physicians) in information technology capacity and office systems that support managing and tracking clinical patient information, quality monitoring, and clinical benchmarking. However, when small- (two to four physicians) and medium-sized (five to nine physicians) practices share resources, they achieve greater health information technology (HIT) capacity, are better able to track and manage patient information, and are more likely to participate in quality monitoring or clinical benchmarking than small and medium practices that do not share resources.

Diverse models of shared clinical services and staff and technical assistance have emerged in the past decade, with many innovative approaches being tested in initiatives across the country.³ The Affordable Care Act includes several provisions to promote the development and testing of shared-resource models to enhance the performance of primary care medical practices.⁴ Furthermore, the Office of the National Coordinator of Health Information Technology has created programs to support the shared-resources model and help small and medium primary care practices adopt HIT. These include RECs, workforce training, and health information exchange programs.⁵

STUDY METHODS

This study draws on data from the 2009 Commonwealth Fund International Health Policy

Survey of Primary Care Physicians, which included a nationally representative sample of 1,442 U.S. physicians in internal medicine, family practice, and pediatrics. The survey asked a series of questions about practice capacity, physician experiences, and basic practice characteristics, including whether physicians are part of a network of other practices that share resources for managing patient care. More than one-third (37%) of small- and medium-sized practices reported they shared resources with others; solo practices said they rarely shared resources. This issue brief first compares practices by size and then divides the small (two to four physicians) and medium (five to nine physicians) practices into two groups—those that share resources with other practices and those that do not. It also compares experiences of physicians in small- and medium-sized practices with and without shared resources to physicians in larger practices. (Additional details about survey findings are in [Appendix 1](#).)

SURVEY FINDINGS

Sharing resources helps smaller practices build health information technology capacity and systems to track and manage patient care.

Health information technology, including electronic medical records (EMRs) and computerized physician order entry, has the potential to improve the quality,

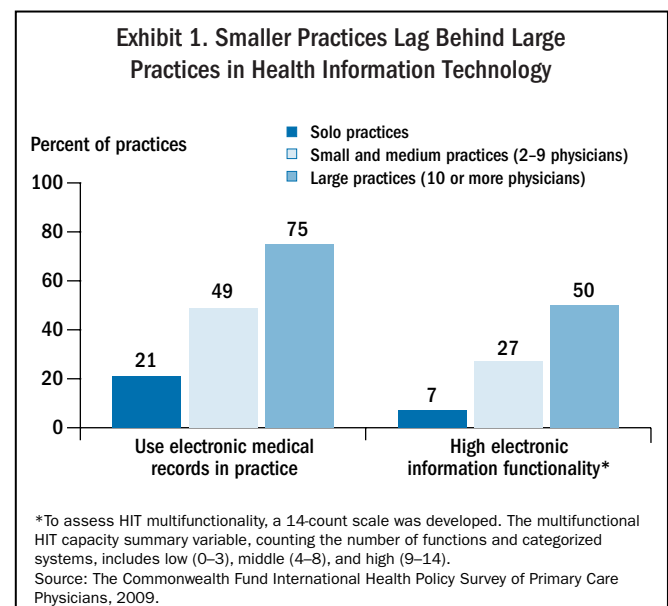
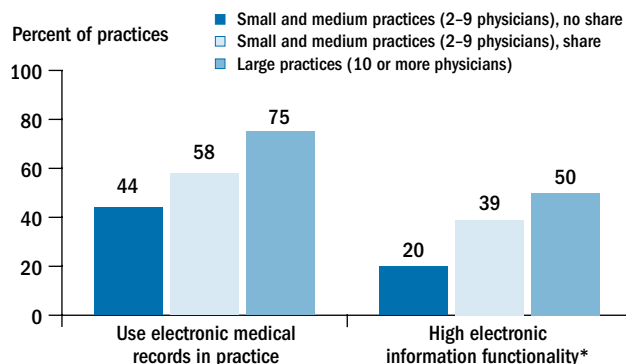


Exhibit 2. Practices That Share Resources Have Higher Use of Electronic Medical Records and Health Information Technology



*To assess HIT multifunctionality, a 14-count scale was developed. The multifunctional HIT capacity summary variable, counting the number of functions and categorized systems, includes low (0–3), middle (4–8), and high (9–14).
Source: The Commonwealth Fund International Health Policy Survey of Primary Care Physicians, 2009.

efficiency, and patient-centeredness of care while reducing health care costs. Experts agree that EMRs help prevent patients from receiving prescriptions for inappropriate drugs or dosages, reduce medical errors stemming from hard-to-read handwriting, and decrease duplicative testing by providing a permanent place to store medical data. Yet because of costs and the fact that the benefits of safer care and improved coordination often accrue to the broader community, rather than the individual practice, smaller practices are often reluctant to invest in information technology.

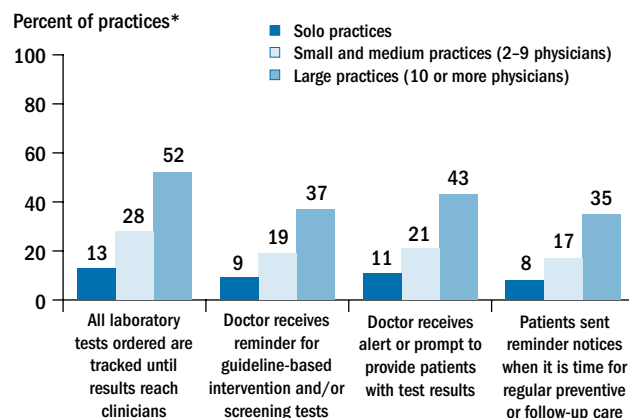
The survey finds that smaller primary care practices still significantly lag behind large practices in using EMRs and more advanced electronic information technology (Exhibit 1).⁶ Four of 10 small primary care practices use EMRs, compared with three-quarters of large practices (Appendix 1). Only one-quarter of small practices and one-third of medium practices have high multifunctional health information technology, compared with half of large practices.⁷ When smaller practices share resources, however, they are more likely to have EMRs. In addition, the use of shared resources nearly doubles the percentage of practices that have advanced HIT functionality—that is, computerized systems with the capacity to provide at least seven of 14 different functions, like tracking patients' laboratory tests, receiving reminders about guideline-based

interventions, and receiving alerts to provide patients with their test results (Exhibit 2).

Health information technology has the potential to improve the coordination of care. Care processes in the United States are often fragmented and uncoordinated; for instance, prescribing and managing patients' medications and tracking results are often complex and prone to error. Poor care coordination can result in the duplication of tests and medical records and in diagnostic test results not being available at the time of care.⁸ Studies show that computerized physician order entry (CPOE) and clinical decision support can improve patient safety and lower medication-related costs.^{9,10} Information technology and organized processes, such as guidelines, in conjunction with physician education or reminder systems, can also help physicians manage care of patients with chronic diseases and improve clinical outcomes.¹¹

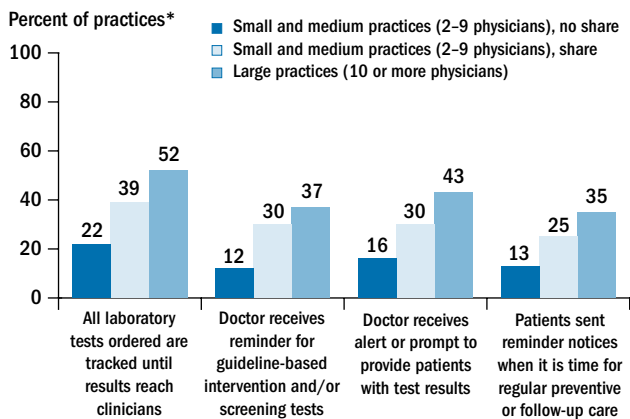
The Commonwealth Fund survey asked physicians whether they routinely used CPOE and clinical decision support in their own practices. The survey found that compared with large practices, small practices are at a disadvantage: half as many small practices routinely use computerized reminders for tracking laboratory tests (25% vs. 52%) and even fewer receive prompts to provide patients with test results (19% vs. 43%) (Appendix 1). Only 15 percent of physicians in small practices routinely receive notices when

Exhibit 3. Smaller Practices Lag Behind Large Practices in Office System Support



*Percent of practices who routinely performed tasks using a computerized system.
Source: The Commonwealth Fund International Health Policy Survey of Primary Care Physicians, 2009.

Exhibit 4. Practices That Share Resources More Often Have Office System Support



*Percent of practices who routinely performed tasks using a computerized system.
Source: The Commonwealth Fund International Health Policy Survey of Primary Care Physicians, 2009.

preventive or follow-up care is required compared with more than one-third (35%) of larger practices. Only 19 percent of small-to-medium practices use treatment guideline reminders—twice as many large practices can perform this function (Exhibit 3).

However, when small- and medium-sized practices share resources, the performance gap between smaller and large practices in managing and tracking patient care diminishes (Exhibit 4). Small practices that share resources perform more like large practices when it comes to tracking and managing patient care. In addition, they are significantly more likely to use computerized tracking and management systems than small practices who do not share resources.

Sharing resources helps smaller practices provide after-hours care and support patient self-management.

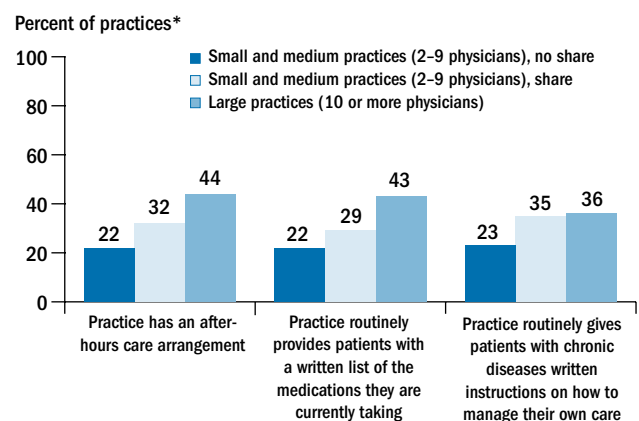
Ready access to care is essential, especially for patients with chronic or complex conditions. Managing one's own care can be extremely confusing and complex—oftentimes patients have multiple conditions and comorbidities that require primary and specialty care, including care in the evenings or weekends outside of normal office hours. In the last few decades there has been a steady rise in the use of the hospital emergency department for nonurgent care.¹² Using the emergency room for primary care is less cost-effective and

efficient than providing patients with after-hours care through physician practices.¹³

Overall, the percentage of primary care practices that have arrangements to provide care after-hours without referring patients to emergency rooms has been declining. In 2009, only 29 percent of all primary care practices surveyed reported such arrangements, compared with 40 percent in 2006.¹⁴ The 2009 survey indicates that small- and medium-sized practices are significantly less likely than larger practices to have such arrangements—only 24 percent of small and 29 percent of medium practices have after-hours support, compared with 44 percent of larger practices (Appendix 1). Having no after-hours arrangements leaves patients no other alternative but to use emergency rooms for care that could have been provided in a doctor's office. Small- and medium-sized practices that share resources are significantly more likely to provide after-hours care arrangements for their patients than their counterparts without shared resources (Exhibit 5, Appendix 1). Community-based physician cooperatives have the potential to improve after-hours care access for patients and support physicians.

Engaging patients in managing their complex conditions helps avoid complications and improves outcomes over time.¹⁵ Written care management plans offer an effective way of engaging patients in their care. Survey findings indicate that smaller practices are less likely to provide their patients with written

Exhibit 5. Practices That Share Resources Are More Likely to Provide After-Hours Care and Support Patient Self-Management



*Percent of practices who routinely performed tasks using a computerized system.
Source: The Commonwealth Fund International Health Policy Survey of Primary Care Physicians, 2009.

care management plans. Slightly more than one-quarter (27%) of small practices provide their patients with chronic diseases with written instructions about how to manage their own care at home, compared with more than one-third (36%) of large practices (Appendix 1). Furthermore, half as many small practices provide patients with a written list of the medications they are currently taking compared with large practices (21% vs. 43%). Small and medium practices with shared resources are more likely to provide their patients with written instructions on medications and care management than practices that do not share resources (Exhibit 5). There is substantial room for improvement for all practices—whether they share resources or not—to engage more patients in managing conditions at home.

Practices that share resources are more likely to participate in quality monitoring, benchmarking, and practice improvement.

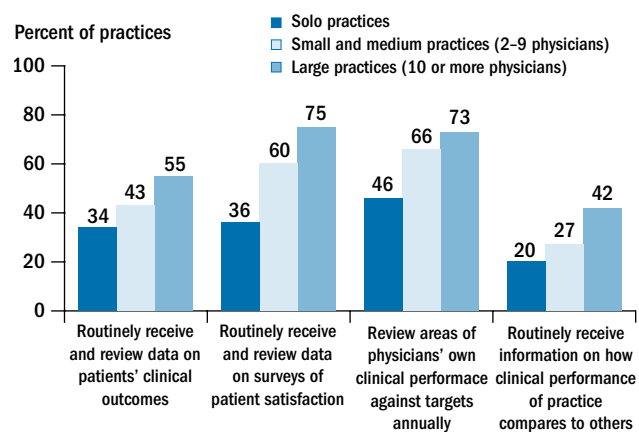
The groundbreaking Institute of Medicine reports *To Err Is Human* and *Crossing the Quality Chasm* brought attention to the importance of measuring and tracking performance and of establishing a practice-based continuous quality improvement infrastructure.^{16,17}

Yet, this survey finds that small practices lag well behind large practices in participation in quality

monitoring and clinical benchmarking (Exhibit 6).

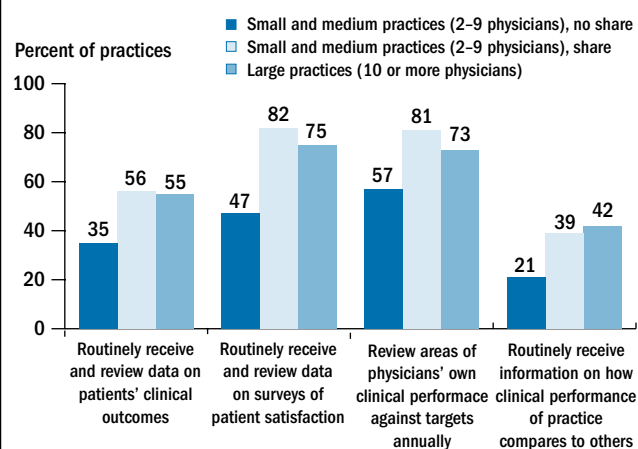
They are less likely to receive and review data on their patients' clinical outcomes or patient experience with care, and less likely to have information regarding how their practice compares with other practices. Small and medium practices with fewer than 10 physicians face unique challenges in implementing quality improvement initiatives including limited resources, smaller staff, and inadequate health information technology.¹⁸ But, survey findings indicate that when small and medium practices share resources, they are far more likely to participate in such activities and have access to data to assess performance. Indeed, they rival or exceed participation rates of large practices in some areas. Compared with practices without shared resources, small- and medium-sized practices with shared resources were much more likely to routinely receive and review data on patients' clinical outcomes (35% vs. 56%), surveys of patient satisfaction (47% vs. 82%), and comparative clinical performance (21% vs. 39%) (Exhibit 7). They also review their clinical performance against targets at much higher rates than similarly sized practices without shared resources.

Exhibit 6. Smaller Practices Lag Behind Large Practices in Quality Monitoring and Clinical Benchmarking



Source: The Commonwealth Fund International Health Policy Survey of Primary Care Physicians, 2009.

Exhibit 7. Practices That Share Resources More Often Conduct Quality Monitoring and Clinical Benchmarking



Source: The Commonwealth Fund International Health Policy Survey of Primary Care Physicians, 2009.

POLICY RECOMMENDATIONS

Practice size continues to be a significant determinant of primary care physicians' ability to achieve greater levels of functionalities essential to providing high-quality, patient-centered care.¹⁹ Survey results indicate, however, that smaller practices need not be limited by size, if they have the opportunity to join with others to share services. The survey finds that smaller practices that share resources are more likely to have more EMR systems and HIT, are more likely to routinely track and manage patient information, and are more likely to provide after-hours care arrangements. Physicians who share resources with other practices are also more likely to participate in quality monitoring and benchmarking than similarly sized practices without shared resources. This suggests that shared-resource strategies, which include clinical and information systems as well as technical assistance, offer a promising approach to supporting physicians and expanding the service and patient-care capacity of smaller primary care practices, with potential gains in performance over time.²⁰

Across the country, states and private entities are taking strategic approaches to sharing resources. The Affordable Care Act and investment in information technology made by the federal stimulus bill will serve to create even more opportunities.

Building smaller practices' health information technology capabilities and supporting the exchange of information.

The passage of the American Recovery and Reinvestment Act of 2009 and the Health Information Technology for Economic and Clinical Health Act has set aside \$19 billion to promote the adoption and use of HIT and EMRs. With these funds, the Office of the National Coordinator of Health Information Technology has deployed programs that support the shared-resources model and can help small and medium primary care practices adopt HIT.²¹ These include regional extension centers, workforce training, and health information exchange programs.

RECs are organizations that provide assistance to primary care providers by helping them select and successfully implement certified EMR technology to

enable those providers to meet the criteria of "meaningful use."²² Sixty-two RECs are poised to reach primary care providers in every geographic region in the United States in order to provide outreach and support services in the implementation of HIT during a two-year time frame.²³ As of February 2011, 40,000 primary care providers have already enrolled to receive assistance from RECs.²⁴ The services they offer will vary according to the needs of the practices, but include: guidance on vendor selection and group purchasing; privacy and security best practices; ensuring functional interoperability; health information exchange; and practice and workflow redesign.²⁵ Because the RECs are funded only until 2015, sustainability will become a priority. It will be essential to track the REC program over the next two years; strong business plans will also need to be developed, likely based on public-private partnerships.

New York City's Primary Care Information Collaborative (PCIP) and Massachusetts' e-Health Collaborative both serve as RECs to their surrounding communities, and are examples of successful shared-resource models.²⁶ These organizations provide expert one-on-one assistance in advanced HIT functions for small practices that otherwise would not have the necessary resources, knowledge, or capacity. PCIP staff members are deployed from New York City's Department of Health and Mental Hygiene to assist practices in implementing customized decision support tools. To date, PCIP has worked with 605 clinicians in 254 small practices. The Massachusetts e-Health Collaborative sends consultants to work with small practices over a 24-week period. These consultants assist with workflow redesign first, before introducing and implementing HIT. Other technical assistance models use call centers instead of onsite assistance.

Enhancing the capacity to improve care coordination, chronic disease management, and provide enhanced access after hours.

Small and medium practices may not have the financial resources or capacity to have full-time clinical-care

nurses, care coordinators, case managers, urgent-care providers, or nutritional counselors. They could, however, augment their existing staff and clinical services by sharing these health care personnel through a regional or community-based pool. For example, Genesys HealthWorks, a model of care developed by Genesys Health System in metropolitan Flint, Michigan, partners with 150 community-based primary care physicians and deploys a shared pool of health navigators (health educators, social workers, dietitians, and others in health-related fields). The health navigators support patients by reinforcing the physician's recommendations related to healthy lifestyles, medication adherence, and self-monitoring, as well as linking the patient to community resources, in order to prevent and manage chronic disease.²⁷

CareOregon is a Medicaid health plan that developed a shared-resource model to assist in the care of the plan's patients. Caring for the Medicaid population often requires providers to devote time and resources they do not have to understand the barriers this population faces in achieving good health. To overcome these challenges, CareOregon developed the CareSupport program, a multidisciplinary case management service, which is run centrally by CareOregon and supports primary care practices. The CareSupport program is made up of teams that include a registered nurse acting as the case manager, a care coordination assistant, and a social worker (all employed by CareOregon). Each team is assigned to dedicated panels of patients according to the primary care practice that treats them. The teams facilitate communication and understanding between providers and patients, identify barriers to self-care, locate community resources, and assist patients with complex health needs.²⁸

Delivery systems and health plans are not the only organizers of shared-resource strategies. Vermont's Blueprint for Health, for instance, is a statewide, public-private initiative designed to reduce the health and economic impacts of common chronic conditions. A key component of this program is a multidisciplinary community care team that provides support and expertise to participating medical practices,

including care coordination, population management, and quality improvement services.

North Carolina also employs a statewide network of 14 local community care organizations that bring physicians together in a partnership with other local stakeholders, such as hospitals, community health departments, and social service agencies to help improve the accessibility, quality, and efficiency of care delivery. Known as Community Care of North Carolina, these 14 nonprofit community networks serve low-income children and adults enrolled in Medicaid or the Children's Health Insurance Program, and share staff among providers in an effort to introduce screening tools in practices, educate providers about community resources, and enhance communication between providers and referral services. Each network employs case managers who are assigned to work with medical practices to monitor care and implement a variety of disease management programs. This state-community partnership is structured to leverage local resources and relationships to meet local needs and promote local responsibility for systemwide principles of collaboration, population health management, and accountability. The state of North Carolina partners with the program to provide resources, information, and technical support, such as analyzing Medicaid claims data and sponsoring statewide audits for performance measurement and benchmarking purposes.²⁹

Community-based approaches in other countries also illustrate the potential of sharing resources to expand after-hours care. European after-hours care is shifting away from individual and group practices with local after-hours call schedules toward large-scale after-hours care services provided by cooperatives.³⁰ Denmark, the Netherlands, and the United Kingdom, for example, have physician-run after-hours cooperatives supported by additional personnel, to provide care on nights and weekends through a range of services, including telephone triage and advice, face-to-face contact with physicians at walk-in centers, and house calls.

Building smaller practices' capacity to participate in care monitoring, clinical benchmarking, and quality improvement.

Collecting and creating useful quality reports for physicians requires resources, such as staff time and analytic expertise, as well as advanced health information technology capabilities, which smaller practices often lack. A number of initiatives are under way that could provide physicians with those resources. The Physician Compare Web site, sponsored by the Centers for Medicare and Medicaid Services (CMS), is modeled after the Hospital Compare and Nursing Home Compare sites. The vision for the site is to provide demographic information as well as quality-of-care data on physicians who participate in the Medicare program. Launched in January 2011, only demographic information is currently available; in 2013, quality-of-care and patient experience data will become available. This data source, when fully deployed, will be of great value to physicians, allowing them free access to benchmark data they currently do not have the capacity to generate.

Physicians also stand to benefit financially from reporting their performance data. CMS has been testing the Physician Quality Reporting Initiative (PQRI), in which physicians self-report quality data for a number of conditions (e.g., diabetes, preventive care, heart failure). To date, the initiative has been purely voluntary and not tied to any rewards or penalties. The Affordable Care Act makes a number of changes to PQRI, including authorizing incentive payments through 2014. Physicians will qualify to earn incentive payments of between 0.5 percent and 1 percent of their total estimated allowed charges for Medicare Part B. Some of these additional dollars could allow small practices to invest in and build their data capacity.

Chartered value exchange networks, supported by the Department of Health and Human Services, are another benchmarking and performance monitoring resource for physicians.³¹ They include state and community-based organizations that bring together coalitions of providers, employers, health plans, and other payers to support collection, analyses, and public

reporting of quality-of-care data. The Wisconsin Collaborative for Healthcare Quality, for example, is a voluntary consortium of providers, payers, and consumers with goals to develop, prioritize, and implement performance measures. These measures will be used to assess the quality of health care services through the collection, validation, application, and analysis of administrative and clinical data. The collaborative publicly reports comparative data on the quality of care of more than 550 clinics. Physicians can see how they perform over time and compare themselves to peers. The collaborative also shares best practices of health care organizations that demonstrate high-quality service, which may help all providers to adopt successful methods.

Developing, testing, and spreading shared-resource strategies and models.

Although promising shared-resource activities exist in communities around the country, learning from these experiences will require identifying successful models, testing them in various settings, and assessing the potential to improve the delivery of care. Equally important is finding ways to sustain and pay for these resources.

The Affordable Care Act includes provisions that target the development, testing, and spread of the shared-resources model ([Appendix 2](#)).³² For example, the Primary Care Extension Program will provide shared technical assistance through the creation of state health extension hubs funded by grants from the Agency for Healthcare Research and Quality. The hubs will consist of partnerships among state health departments, Medicaid agencies, primary care associations, and health centers. They will employ staff to provide support and assistance to primary care providers and practices, educating them about preventive medicine, health promotion, chronic disease management, mental and behavioral health services, and evidence-based therapies and techniques to improve community health. In 2011 and 2012, \$120 million is authorized to support this program, with more funds to provide support as necessary in 2013 and 2014.³³ These hubs should help provide the necessary assistance and support that

small practices need in order to achieve well coordinated and highly functional quality care.

In addition, the Community Health Teams provision of the Affordable Care Act (authorized but not appropriated) would support small practices in implementing patient-centered medical homes through shared clinical services and technical assistance. Through this program, state grants would fund community-based interdisciplinary teams that would work with primary care practices to coordinate preventive, specialty, and acute care services; provide 24-hour access; and ensure appropriate care transitions. The teams may include specialists, nurses, pharmacists, nutritionists, dietitians, social workers, behavioral and mental health providers, and physicians' assistants. The Center for Medicare and Medicaid Innovation will be instrumental in providing rapid, qualitative and quantitative formative evaluations as these provisions are implemented.

Sustaining such efforts will require development of new payment methods. This could include direct support of care-share networks, as in North Carolina's Medicaid program. The North Carolina Care Share Health Alliance is a statewide program for communities throughout the state to leverage resources (e.g., expertise, funding, equipment, facilities) that support care across the continuum of patient needs.³⁴ Payment methods could also include monthly

payments (in addition to fee-for-service compensation) to practices that serve as medical homes. The monthly allocation could be designated to support virtual care teams and shared resources in the community, including information exchanges.

CONCLUSION

In order to provide accessible, high-quality, well-coordinated care and to take advantage of the potential of team-based care and information technology, solo and smaller practices will likely need to establish links with other providers, service organizations, and community resources. Today, physicians practice in the context of a complex health care delivery system and manage very complicated patients with long-term chronic conditions. Joining a network of other health care providers or organizations can benefit both physicians and patients. Promising shared-resource models exist and health reform provides further support and incentives to foster development. But more work is needed to identify new sustainable models, to evaluate their impact, and to adapt and spread successful models to all primary care practices. Strong business strategies will also be essential, as well as public-private subsidies or grants, new payment models, and incentives to support the health care infrastructure required to deliver high-quality care.

NOTES

¹ E. R. Boukus, A. Cassil, and A. S. O'Malley, *A Snapshot of U.S. Physicians: Key Findings from the 2008 Health Tracking Study Physician Survey* (Washington, D.C.: Center for Studying Health System Change, Sept. 2009); L. P. Casalino, K. J. Devers, T. K. Lake et al., "Benefits of and Barriers to Large Medical Group Practice in the United States," *Archives of Internal Medicine*, Sept. 8, 2003 163(16):1958–64; J. D. Ketcham, L. C. Baker, and D. MacIssac, "Physician Practice Size and Variations in Treatments and Outcomes: Evidence from Medicare Patients with AMI," *Health Affairs*,

Jan./Feb. 2007 26(1):195–205; and R. H. Miller, C. West, T. M. Brown et al., "The Value of Electronic Health Records in Solo or Small Group Practices," *Health Affairs*, Sept./Oct. 2005 24(5):1127–37.

² M. Abrams, E. Schor, and S. Schoenbaum, "How Physician Practices Could Share Personnel and Resources to Support Medical Homes," *Health Affairs*, June 2010 29(6):1194–99.

- ³ P. Torda, E. S. Han, and S. H. Scholle, “[Easing the Adoption and Use of Electronic Health Records in Small Practices](#),” *Health Affairs*, April 2010 29(4):668–75; K. Grumbach and J. W. Mold, “A Health Care Cooperative Extension Service: Transforming Primary Care and Community Health,” *Journal of the American Medical Association*, June 24, 2009 301(24):2589–91; and B. D. Steiner, A. C. Denham, E. Ashkin et al., “Community Care of North Carolina: Improving Care Through Community Health Networks,” *Annals of Family Medicine*, July/Aug. 2008 6(4):361–67.
- ⁴ Abrams, Schor, and Schoenbaum, “[How Physician Practices Could Share Personnel](#),” 2010.
- ⁵ E. Maxson, S. Jain, A. McKethan et al., “Beacon Communities Aim to Use Health Information Technology to Transform the Delivery of Care,” *Health Affairs*, Sept. 2010 29(9):1671–77.
- ⁶ Our analysis repeats findings from earlier studies, including: L. Casalino, R. R. Gillies, S. M. Shortell et al., “External Incentives, Information Technology, and Organized Processes to Improve Health Care Quality for Patients with Chronic Diseases,” *Journal of the American Medical Association*, Jan. 22–29, 2003 289(4):434–41.
- ⁷ To assess HIT multifunctionality, a 14-count scale was developed, which includes: EMR; electronic ordering of lab tests; electronic access to patients’ lab results; e-alerts about potential problems with drug dose or drug interaction; electronic entry of clinical notes, medical history, and follow-up notes; e-prescribing of medications; ease of generating and/or computerization of lists of patients by diagnosis, lab results, due or overdue for tests or preventive care, and lists of all medications taken by a patient; patients sent reminder notices for preventive or follow-up care; all lab results are tracked until results are received; use of alerts or prompts to provide patients with test results; and use of reminders for guideline-based intervention and/or screening tests. The multifunctional HIT capacity summary variable, counting the number of functions and categorized systems, includes low (0–3), middle (4–8), and high (9–14).
- ⁸ C. Schoen, R. Osborn, M. M. Doty, M. Bishop, J. Peugh, and N. Murukutla, “[Toward Higher-Performance Health Systems: Adults’ Health Care Experiences in Seven Countries, 2007](#),” *Health Affairs* Web Exclusive, Oct. 31, 2007 26(6):w717–w734.
- ⁹ J. I. Wolfstaat, J. H. Gurwitz, T. S. Field et al., “The Effect of Computerized Physician Order Entry with Clinical Decision Support on the Rates of Adverse Drug Events: A Systematic Review,” *Journal of General Internal Medicine*, April 2008 23(4):451–58.
- ¹⁰ G. J. Kuperman, A. Bobb, T. H. Payne et al., “Medication-Related Clinical Decision Support in Computerized Provider Order Entry Systems: A Review,” *Journal of the American Medical Informatics Association*, Jan.–Feb. 2007 14(1):29–40.
- ¹¹ Casalino, Gillies, Shortell et al., “External Incentives,” 2003.
- ¹² S. R. Pitts, R. W. Niska, J. Xu et al., “National Hospital Ambulatory Medical Care Survey: 2006 Emergency Department Summary,” *National Health Statistics Reports*, Aug. 6, 2008 7:1–38.
- ¹³ Ibid.; and M. S. Howard, B. A. Davis, C. Anderson et al., “Patients’ Perspective on Choosing the Emergency Department for Nonurgent Medical Care: A Qualitative Study Exploring One Reason for Overcrowding,” *Journal of Emergency Nursing*, Oct. 2005 31(5):429–35.
- ¹⁴ C. Schoen, R. Osborn, P. T. Huynh, M. M. Doty, J. Peugh, and K. Zapert, “[On the Front Lines of Care: Primary Care Doctors’ Office Systems, Experiences, and Views in Seven Countries](#),” *Health Affairs* Web Exclusive, Nov. 2, 2006, w555–w571.
- ¹⁵ Schoen, Osborn, Doty et al., “[Toward Higher-Performance Health Systems](#),” 2007.
- ¹⁶ Institute of Medicine, *To Err Is Human: Building a Safer Health System* (Washington, D.C.: National Academies Press, 1999).
- ¹⁷ Institute of Medicine, *Crossing the Quality Chasm: A New Health System for the 21st Century*, (Washington, D.C.: National Academies Press, 2001).

- ¹⁸ Casalino, Devers, Lake et al., “Benefits of and Barriers to Large Medical Group Practice,” 2003.
- ¹⁹ A.-M. J. Audet, M. M. Doty, J. Shamasdin, and S. C. Schoenbaum, “[Measure, Learn, and Improve: Physicians’ Involvement in Quality Improvement](#),” *Health Affairs*, May/June 2005 24(3):843–53; and D. R. Rittenhouse, L. P. Casalino, R. R. Gillies et al., “[Measuring the Medical Home Infrastructure in Large Medical Groups](#),” *Health Affairs*, Sept./Oct. 2008 27(5):1246–58.
- ²⁰ Abrams, Schor, and Schoenbaum, “[How Physician Practices Could Share Personnel](#),” 2010.
- ²¹ Maxson, Jain, McKethan et al., “Beacon Communities,” 2010.
- ²² The Health Information Technology for Economic and Clinical Health (HITECH) Act called for a series of provisions to support the adoption and “meaningful use” of electronic medical records (EMRs)—that is, EMR use by providers to achieve significant improvements in care. HITECH funds a Medicare and Medicaid EMR incentive program that ties provider payments specifically to their achievement in advances in health care processes and outcomes. Regulation outlines what hospitals and clinicians must do with EMRs to be considered meaningful users. Regulation includes 23 “meaningful use” objectives for hospitals and 25 for clinicians. For more information on these objectives, see: D. Blumenthal and M. Tavenner, “The ‘Meaningful Use’ Regulation for Electronic Health Records,” *New England Journal of Medicine*, Aug. 5, 2010 363(6):501–4. For additional information on the Medicare and Medicaid EMR incentive programs, including the text of the final rule, visit: <http://www.cms.gov/EHRIncentivePrograms/>.
- ²³ From 2010–2012, \$677 million will be awarded to support RECs as they help primary care providers achieve meaningful use HIT. For more information, see: <http://blogs.federal-times.com/federal-times-blog/2010/09/28/onc-awards-funding-for-final-extension-centers/>.
- ²⁴ D. Blumenthal, U.S. Department of Health and Human Services, National Health Policy Conference, J. W. Marriott, Washington, D.C., Feb. 8, 2011.
- ²⁵ Torda, Han, Scholle, “[Easing the Adoption and Use](#),” 2010.
- ²⁶ F. Mostashari, M. Tripathi, and M. Kendall, “A Tale of Two Large Community Electronic Health Record Extension Projects,” *Health Affairs*, March/April 2009 28(2):345–56.
- ²⁷ S. Klein and D. McCarthy, *Genesys HealthWorks: Pursuing the Triple Aim Through a Primary Care-Based Delivery System, Integrated Self-Management Support, and Community Partnerships* (New York: The Commonwealth Fund, July 2010).
- ²⁸ S. Klein and D. McCarthy, *CareOregon: Transforming the Role of Medicaid Health Plan from Payer to Partner* (New York: The Commonwealth Fund, July 2010).
- ²⁹ For more information, see: S. Klein and D. McCarthy, *North Carolina’s ABCD Program: Using Community Care Networks to Improve the Delivery of Childhood Developmental Screening and Referral to Early Intervention* (New York: The Commonwealth Fund, Aug. 2009).
- ³⁰ L. Huibers, P. Giesen, M. Wensing et al., “Out-of-Hours Care in Western Countries: Assessment of Different Organizational Models,” *BMC Health Services Research*, June 23, 2009 9:105.
- ³¹ U.S. Department of Health and Human Services, Chartering Value Exchanges, available at: <http://archive.hhs.gov/valuedriven/communities/valueexchanges/exchanges.html>.
- ³² Abrams, Schor, and Schoenbaum, “[How Physician Practices Could Share Personnel](#),” 2010.
- ³³ Patient Protection and Affordable Care Act, SEC. 399W. Primary Care Extension Program. Accessed from Library of Congress at <http://thomas.loc.gov/cgi-bin/query/z?c111:H.R.3590.enr>.
- ³⁴ For more information, visit: <https://www.careshare-health.org/index.lasso?id=31&cat=5>.

Appendix 1

	US	All Practices			Solo Practice 1 Physician			Small Practice 2-4 Physicians			Medium Practice 5-9 physicians			Large Practice 10 + physicians			Small & Medium Practice 2-9 Physicians		
		Share		No Share	Total		No Share	Total		No Share	Total		No Share	Total		No Share	Total		No Share
		473	938		353		174	312	185		291	106	185		253		782	280	497
Unweighted N=		1,442																	
INFORMATION TECHNOLOGY																			
Do you use electronic patient medical records in your practice? (%)																			
Yes)																			
Practice electric information functions*																			
Low (0 to 3)	46%	62%	38%		21%		55%	36%	57%		59%	62%	57%		75%		49%	58% ^{e,f}	44%
Middle (4 to 8)	52%	34%	59%		76%		38%	59%	40%		38%	35%	40%		26%		46%	37% ^{e,f}	51%
High (9 to 14)	23%	22%	23%		16%		22%	25%	34%		31%	26%	34%		24%		27%	24%	29%
	26%	43%	18%		7%		40%	15%	26%		31%	39%	26%		50%		27%	39% ^{e,f}	20%
CLINICAL DECISION SUPPORT																			
Are the following tasks routinely performed in your practice using a computerized system?																			
All laboratory tests ordered are tracked until results reach clinicians																			
Yes, Computerized	28%	44% ^a	21%		13% ^b		39% ^c	17%	28%		32%	39%	28%		52%		28%	39% ^{e,f}	22%
Yes, Manual	40%	31% ^a	45%		56% ^b		33% ^c	51%	31%		31%	32%	31%		21%		39%	33% ^{e,f}	43%
Doctor receives reminder for guideline-based intervention and/or screening tests																			
Yes, Computerized	20%	34% ^a	13%		9% ^b		31% ^c	10%	16%		20%	28% ^d	16%		37%		19%	30% ^{e,f}	12%
Yes, Manual	19%	16% ^a	22%		32% ^b		13%	19%	18%		19%	21%	18%		6%		17%	16% ^f	18%
Doctor receives alert or prompt to provide patients with test results																			
Yes, Computerized	22%	35% ^a	16%		11% ^b		29% ^c	14%	19%		23%	31% ^d	19%		43%		21%	30% ^{e,f}	18%
Yes, Manual	28%	23% ^a	31%		47% ^b		25%	30%	19%		19%	17%	19%		10%		24%	22% ^f	26%
Patients sent reminder notices when it is time for regular preventive or follow-up care																			
Yes, Computerized	18%	30% ^a	12%		8% ^b		23% ^c	9%	18%		21%	28%	18%		35%		17%	25% ^{e,f}	13%
Yes, Manual	29%	23% ^a	33%		41% ^b		21% ^c	30%	29%		29%	29%	29%		15%		28%	24% ^f	30%
ACCESS TO AND MANAGEMENT OF PATIENT CARE																			
Practice has an arrangement where patients can see a doctor or nurse if needed when the practice is closed (after-hours) without going to the ER? (%)																			
Do you provide patients with a written list of the medications they are currently taking?	29%	36% ^a	25%		26% ^b		28%	21%	24%		29%	38% ^d	24%		44%		26%	32% ^{e,f}	22%
Yes, routinely																			
Do you give your patients with chronic diseases written instructions about how to manage their own care at home?	30%	36% ^a	27%		30% ^b		25%	19%	26%		30%	37% ^d	26%		43%		25%	29% ^{e,f}	22%
Yes, routinely	30%	37% ^a	27%		29% ^c		32%	24%	22%		29%	41%	22%		36%		28%	35% ^e	23%
QUALITY MONITORING																			
Does the place where you practice routinely receive and review data on either of the following? (%)																			
Patients' clinical outcomes	43%	58% ^a	35%		34% ^b		50% ^c	35%	36%		46%	66% ^d	36%		55%		43%	56% ^e	35%
Surveys of patient satisfaction and experiences with care	56%	79% ^a	44%		36% ^b		78% ^c	40%	57%		68%	90% ^d	57%		75%		60%	82% ^e	47%
Clinical targets and benchmarking																			
Areas of your own clinical performance are reviewed against targets at least annually (%)	61%	79% ^a	53%		46% ^b		80% ^c	56%	59%		67%	83% ^d	59%		73%		66%	81% ^e	57%
Receive information on how the clinical performance of your practice compares to other practices																			
Yes, routinely	28%	43% ^a	20%		20% ^b		41% ^c	21%	26%		26%	36% ^d	21%		42%		27%	39% ^e	21%
Yes, occasionally	33%	29%	35%		35%		29%	37%	31%		30%	30%	31%		31%		33%	30%	34%
No	29%	21% ^a	34%		35% ^b		24%	33%	35%		30%	20% ^d	35%		20%		30%	23% ^e	34%

Source: Commonwealth Fund International Health Policy Survey of Primary Care Physicians, 2009

a*: Differences between sharing resources and not sharing resources is statistically significant (p<.05 or better)

b*: Differences between solo practice and large practice is statistically significant (p<.05 or better)

c*: Differences between small practices that share resources and small practices that don't share resources is statistically significant (p<.05 or better)

d*: Differences between medium practices that share resources and medium practices that don't share resources is statistically significant (p<.05 or better)

e*: Differences between small & medium practices that share resources and small & medium practices that don't share resources is statistically significant (p<.05 or better)

f*: Differences between small & medium practices that share resources and large practices that don't share resources is statistically significant (p<.05 or better)

Abrams M, Schor EL, Schoenbaum S. How physician practices could share personnel and resources to support medical homes. *Health Aff (Millwood)*. 2010;29(6):1194-9.

Technical Appendix Exhibit 1. Selected Provisions from the Patient Protection and Affordable Care Act That Promote Shared Resources to Support Primary Care

Provision in Patient Protection and Affordable Care Act	Shared Resources		Care Providers Offering Shared Resource	Targeted Patient Population	Date to Go into Effect
	Shared Clinical Services	Shared Technical Assistance			
Community Health Teams to support the patient-centered medical home	<p>Community Health Teams will support medical homes practices to:</p> <ul style="list-style-type: none"> • Coordinate and provide access to preventive care, health promotion services, specialty care and inpatient services • Implement care plans that integrate clinical and community preventive and health promotion services for patients • Monitor health outcomes and resource use to avoid duplication of service • Provide 24-hour access, especially for patients during care transitions • Identify and refer children at risk for developmental or behavioral problems 	<p>Implement health information technology to facilitate coordination among members of the health team</p>	<p>“Teams” defined as community-based interdisciplinary, interprofessional professional (specialists, nurses, pharmacists, nutritionists, dieticians, social workers, and mental health providers)</p> <p>“Medical homes” defined as primary care practices (family medicine, internal medicine, pediatrics, OB/GYN) that meet criteria consistent with the Joint Principles</p>	<p>Patients of primary care practices with chronic conditions</p>	Not specified
Primary Care Extension Program		<p>Health Extension “hubs” will employ “agents” who will educate and support primary care providers to:</p> <ul style="list-style-type: none"> • Implement medical home • Improve preventive medicine, health promotion, chronic disease management, mental, behavioral health services and evidence-based therapies • Learn quality improvement techniques • Develop and support local learning communities to disseminate research findings • Participate in national network of extension programs 	<p>State “hubs” must consist of state health department, the state Medicaid agency and at least one department from a health professional school that trains primary care providers. Additional partners may include primary care associations, health centers, physician societies.</p> <p>“Agents” include local, community-based health workers who provides assistance based on the principles of the patient-centered medical home</p>	<p>Patients of primary care practices</p>	<p>AHRQ to award grants to state “hubs” 2011- 2014</p>
Community-based collaborative care networks	<p>Create networks of providers to assist low-income populations with:</p> <ul style="list-style-type: none"> • Off-hours coverage • Direct patient care services • Case management 	<p>Create networks of providers to assist low-income populations with:</p> <ul style="list-style-type: none"> • Finding medical home • Transportation • Health insurance enrollment 	<p>“Networks” will be consortium of providers with joint governance structure. Local hospital and FQHCs required to participate</p>	<p>Low-income populations</p>	<p>HRSA to award grants 2011–2015</p>

Source: Authors’ analysis of Patient Protection and Affordable Care Act.

ABOUT THIS STUDY

Data for this study come from the 2009 Commonwealth Fund International Health Policy Survey of Primary Care Physicians, carried out by Harris Interactive, Inc., in February through July 2009, in 11 countries. The issue brief limits the analysis to the U.S. sample of 1,442 physicians, of which 40 percent are in internal medicine, 35 percent are in family practice, 20 percent are in pediatrics, and 6 percent are in general practice. The final sample is weighted to reflect the distribution of physicians by age, country region, sex, and primary care specialty. The analysis divides practice size into solo, small (n=2 to 4 physicians), medium (n=5 to 9 physicians), and large (n=10 or more physicians). Practices are further categorized by whether or not physicians indicate yes to the question “Is your practice part of a network of other practices who share resources for managing patient care?” The survey has a response rate of 39 percent and a margin of error of ± 3 percent to 4 percent.

ABOUT THE AUTHORS

Ashley-Kay Fryer is research associate for the Commonwealth Fund's Health System Scorecard and Research Project, a three-person research team based in Boston at the Institute for Healthcare Improvement with responsibilities for developing and producing national, state, and substate regional analyses on health care system performance. She provides research and writing support for the ongoing series of national and state scorecard reports and new health care market analyses and supports the work of the team. Ms. Fryer joined the Fund in June 2009 as the program assistant for Health System Quality and Efficiency. Upon graduation from Harvard College in 2008, she worked at J.P. Morgan Chase as an investment banking equity sales analyst. Ms. Fryer graduated cum laude from Harvard College with a B.A. in a self-designed major, "The Determinants of Population Health," and a minor in health policy. She can be e-mailed at akf@cmwf.org.

Michelle McEvoy Doty, Ph.D., assistant vice president, directs research, survey development, and analysis for The Commonwealth Fund. She has authored numerous publications on cross-national comparisons of health system performance, access to quality health care among vulnerable populations, and the extent to which lack of health insurance contributes to inequities in quality of care. She received her M.P.H. and Ph.D. in public health from the University of California, Los Angeles.

Anne-Marie J. Audet, M.D., M.Sc., is vice president for Health System Quality and Efficiency at The Commonwealth Fund. A leader in health care quality improvement for more than 20 years at the national, state, and provider levels, Dr. Audet has conducted policy analysis at the American College of Physicians, led the implementation of the Medicare Health Care Quality Improvement Program in Massachusetts while with the Massachusetts Peer Review Organization, and, more recently, worked with CareGroup, an integrated care system. She also has served as director of the Office for Clinical Effectiveness/Process Improvement at Beth Israel Deaconess Medical Center in Boston, with responsibility for development of quality measurement systems, educational programs, and institution-wide medication safety initiatives. In addition to serving on the Massachusetts Medical Society and Alliance Charitable Foundation board, she is on the Institute of Medicine Subcommittee on Quality Improvement Organizations' Evaluation. Dr. Audet earned an undergraduate degree in cell and molecular biology, a medical degree, and a master's degree in epidemiology from McGill University, as well as an S.M. in health policy and management from Harvard University.

ACKNOWLEDGMENTS

The authors thank colleagues Melinda Abrams, Ed Schor, and Steve Schoenbaum, whose prior work greatly informed this analysis. Appendix 2 from their article (M. K. Abrams, E. L. Schor, and S. C. Schoenbaum, "How Physician Practices Could Share Personnel and Resources to Support Medical Homes," *Health Affairs*, June 2010 29(6):1194–99) is reprinted with *Health Affairs*' permission. The authors also extend appreciation to Cathy Schoen for her thoughtful and invaluable commentary during the review process.

Editorial support was provided by Deborah Lorber.

